

C2: Factsheet for revision: Pure and impure substances

1. All matter (materials) is made from atoms.
2. Elements are materials that only contain one type of atom.
3. Compounds are materials that contain more than one type of atom chemically bonded together.
4. Pure substances contain only atoms or molecules of that substance eg pure water only contains H₂O molecules.
5. A molecule is a particle containing more than 1 atom bonded together.
6. Mixtures, or impure substances, contain two or more different substances that are not chemically joined together.
7. The components of a mixture can be easily separated.
8. The components of a compound can **not** be easily separated.
9. The composition of a mixture can vary.
10. The composition of a compound does not vary.
11. Impurities are small amounts of other substances in a pure substance.
12. Impurities change the physical properties of a pure substance eg the melting point or hardness.
13. Adding an impurity to a substance lowers its melting point.
14. **A solute** - is a soluble solid; the solid that is being dissolved eg table salt
15. **A solvent** - is a liquid that will allow a solute to dissolve in it eg water
16. **A solution** - is the mixture that is formed when the solute has dissolved in the solvent eg salt water.
17. Mass of the solution = mass of the solute + mass of the solvent
18. A saturated solution is one that cannot dissolve any more solute.
19. **Solubility** is how much solute will dissolve in a solvent to make a saturated solution (when no more can dissolve).
20. Solubility is affected by the temperature of the solvent eg. hot water has a higher solubility than cold water, more salt can be dissolved in hot water than in cold water.
21. In an investigation, the independent variable is that which you change and you decide on the values for.
22. The dependent variable is that which changes as a consequence and is measured.
23. Controlled variables are the other things that could change and affect results. We keep these the same (control them) to make the investigation a fair test.
24. Measurements can be made more accurate by selecting better apparatus with finer resolution/ smaller divisions.
25. When plotting a graph of results, the independent variable goes on the x- axis and the dependant variable on the y- axis.
26. Mixtures can be separated by physical methods.
27. **Filtration** is a method used to separate an insoluble solid from a liquid eg sand from sand and water.
28. **Evaporation** is a method used to separate a solute from a solvent eg salt from salt water.
29. **Distillation** is a method used to separate and collect a solvent from a mixture eg water from salt water
30. **Chromatography** is a method used to separate two or more solutes (soluble solids) in the same solvent. Eg separating 2 colours in ink.